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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/588,061	08/01/2006	Harunari Shimamura	043888-0494	4340

20277 7590 12/27/2010

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EXAMINER	
DOVE, TRACY MAE	

ART UNIT	PAPER NUMBER
1726	

MAIL DATE	DELIVERY MODE
12/27/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/588,061	SHIMAMURA ET AL.	
	Examiner	Art Unit	
	TRACY DOVE	1726	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 November 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 and 4-6* is/are pending in the application.

4a) Of the above claim(s) *6* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,4 and 5* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This Office Action is in response to the communications filed on 11/4/10. Applicant's arguments have been considered, but are not persuasive. Claims 1 and 4-6 are pending. Claim 6 has been withdrawn from consideration. This Action is FINAL.

Election/Restrictions

Applicant's election without traverse of Species 1 (manganese dioxide) in the reply filed on 11/19/09 is acknowledged. Claims 1, 4 and 5 read upon the elected species. Claim 6 is withdrawn.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eylem et al., US 7,049,030 in view of Noriyuki et al., JP 2000-082503.

Eylem teaches an alkaline battery comprising a positive electrode, a negative electrode and an alkaline electrolyte. The alkaline electrolyte has a dissolved aluminum material such as $Al(OH)_3$. The negative electrode includes a zinc active material (1:31-66). The negative electrode can further include an aluminum material (2:59-60). The zinc active material of the negative electrode may be zinc alloy (5:23-24). The alkaline electrolyte may be an electrolytic solution such as an aqueous hydroxide solution (e.g., LiOH, NaOH, KOH or mixtures thereof) and is dispersed throughout the battery (3:28-

40). A portion of the electrolytic solution is dispersed throughout the negative electrode (5:15-17). The electrolytic solution can include equal to or less than 2 wt% of aluminum (such as $Al(OH)_3$). For relatively unconcentrated alkaline electrolytic solution, less aluminum material can be used (4:12-21). The positive electrode material may be manganese oxide (6:37-46).

Eylem does not explicitly teach the alkaline electrolytic solution of the negative electrode mixture contains 0.1-2 wt% of LiOH. Eylem teaches a combination of KOH and LiOH may be used as the electrolytic solution.

However, Noriyuki teaches an alkaline battery comprising a negative electrode of zinc particles and an electrolyte of potassium hydroxide. The electrode also may include lithium hydroxide in an amount of 0.1-1 wt% (abstract). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made include the lithium hydroxide taught by Eylem in an amount of 0.1-1 wt%, as taught by Noriyuki, in order to effectively transfer ions to and from the electrode during the charge/discharge cycle of the battery and suppress the reactivity of the electrode materials with the electrolyte solution. Noriyuki teaches the battery has improved properties because the zinc negative electrode is protected from corrosion from the potassium hydroxide solution.

Regarding claim 4, Eylem teaches a portion of the electrolytic solution is dispersed throughout the negative electrode. Eylem does not explicitly teach a weight ratio of alkaline electrolyte to the zinc alloy of the negative electrode mixture is 0.1-2. However, the invention as a whole would have been obvious to one having ordinary skill

in the art at the time the invention was made because one of skill would have known that the amount of electrolyte present in the negative electrode could have been varied depending on the concentration of the electrolytic solution. One of skill would have known that a sufficient amount of electrolytic solution would need to be contained in the negative electrode to prevent the formation of copper metal while consuming a corresponding amount of zinc resulting in lower battery capacity, to prevent evolution of hydrogen gas and to prevent the formation of dendrites that can result in short circuit of the battery (Eylem 3:41-59). One of skill would have also known that the amount of active material contained in the negative electrode would need to be maximized to prevent a decrease in battery capacity. Thus, one of skill would not have been motivated to provide excess amounts of electrolytic solution in the negative electrode active material mixture. One of skill in the art would have understood the potential tradeoffs between adding different amounts of electrolytic solution to the negative electrode active material mixture and could have altered the amount to achieve the desired effects of the battery. Eylem teaches the amount of electrolytic solution can vary depending on the concentration of the alkaline electrolyte.

Response to Arguments

Applicant's arguments filed 11/4/10 have been fully considered but they are not persuasive. Applicant argues Eylem does not disclose the precise range of 0.001-0.2 wt% as recited by the claimed invention. However, Eylem teaches less than or equal to 2 wt% and less than 1 wt% of aluminum is contained in the electrolytic solution. Thus the claimed range is contained within the prior art range. Without a showing of criticality

for the claimed range *over the prior art*, the limitation is considered obvious in view of the teachings of Eylem. Applicant argues it has been demonstrated that the claimed range of aluminum hydroxide, being 0.001 to 0.2 wt%, provides unexpectedly superior results to values outside the claimed range. Applicant argues Tables 2 and 3 of the specification were used to support this finding. Examiner respectfully disagrees.

First, Examples A1-A4, A13, A14, B1-B4, B13, B14, C1-C4, C13 and C14 in Table 2 are not commensurate is scope with the claimed invention OR representative of the prior art of record because the values for LiOH in Table 2 (0-0.08 and 2.5-3 wt%) are outside of the claimed range (0.1-2 wt%) AND the range taught by Noriyuki (0.1-1 wt%). Furthermore, Table 3 shows that 0.001 wt% of $Al(OH)_3$ may still result in a reduction in discharge capacity depending on the electrolyte/zinc alloy weight ratio. At least claim 1 does not require a specific electrolyte/zinc alloy weight ratio. Note Applicant has not addressed the Examiner's motivation statement regarding claim 4. Therefore, Tables 2 and 3 are not representative of the teachings of Eylem and/or Noriyuki. *Evidence of unexpected results must distinguish the claimed invention over the prior art of record*. Applicant has not provided any evidence commensurate in scope with the claimed invention that shows the smaller range of 0.001-0.2 wt% has unexpected results over the broader range of less than or equal to 2 wt% and less than 1 wt% disclosed by Eylem regarding the aluminum hydroxide contained in the electrolyte. In order to show unexpected results, all of the inventive and comparative batteries should be identical with the exception of the weight percent of aluminum hydroxide contained as an electrolyte additive. Furthermore, any attempt to show

unexpected results over Eylem in view of Noriyuki should show batteries wherein the aluminum hydroxide additive is greater than 0.2 wt%, but less than 2 wt% and batteries wherein the aluminum hydroxide additive is less than 0.001 wt% (note all other components of the battery should be identical). No evidence showing that the smaller range within the range disclosed in the prior art provides unexpected results has not been presented.

Furthermore, Eylem teaches the presence of aluminum ions (from an aluminum material such as $Al(OH)_3$) can enhance the storage life and/or capacity of the battery. Therefore, Applicant's asserted improved discharge capacity is not an "unexpected result".

Applicant argues the fact that no specific zinc alloy is claimed is completely irrelevant. However, Table 3 shows that even the form of the zinc alloy is relevant when evaluating discharge capacity of the battery. In Table 3 the first listed example for each of A7, B7 and C7 recites identical values for each of LiOH wt%, $Al(OH)_3$ wt% and the electrolyte/zinc alloy weight ratio. However, the discharge capacity of the three examples varies significantly. Thus, the amount of $Al(OH)_3$ contained in the electrolyte is not what results in the variation in discharge capacity shown in at least Table 3.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to TRACY DOVE whose telephone number is (571)272-1285. The examiner can normally be reached on M & TU (9:00-5:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

December 20, 2010

/TRACY DOVE/
Primary Examiner, Art Unit 1726